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ABSTRACT

The paper provides an overview of fundamental uses of the microcomputer by special education administrators in a large-city school district. Microcomputer applications are suggested for the following applications: school-level administrative functions (e.g., tracking equipment repair, budget forecasting, and class scheduling); district-wide administrative applications (student and personnel data, management programs, and state reports); testing; reporting requirements; professional communication and education; compliance with state and federal regulations; staff development; curriculum planning; instructional management; networking; evaluation and research; and telecommunications. (DB)

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WHAT CAN COMPUTER TECHNOLOGY OFFER SPECIAL EDUCATION ADMINISTRATORS?

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WHAT CAN COMPUTER TECHNOLOGY OFFER SPECIAL EDUCATION ADMINISTRATORS

BACKGROUND

One of the principal challenges that educators must meet today is providing a growing number of administrative and instructional services in the face of budgetary constraints and changing school environments. To meet this challenge, many school districts have computerized their administrative functions to some degree.

More specifically, management and information needs of special education administrators have expanded significantly as the delivery of special education services has become more complex. Increased funding and public interest in special education has lead to mounting pressure for program evaluation and accountability.

According to the literature, computers are gaining wide-spread acceptance as one of the most cost-efficient ways to meet these needs. Two recent surveys show that 42 percent of the nation's school districts have one or more microcomputers (Education TURNKEY, 1982).

Etling and Bailey (1987) noted that:

> The microcomputer is a versatile piece of technology. A standard system...can serve a variety of services simply by changing the software. (p. 32)

The presentation describes an overview of a dozen fundamental uses of the microcomputer that a large-city school district's special education administrators have used successfully for the past few years. These uses are certainly not mutually exclusive. However, the categories can be described as being distinct classes of use which relate to school organization, curriculum development, and instruction.

SCHOOL-LEVEL ADMINISTRATIVE APPLICATIONS

Student records such as attendance, grades, special education testing dates, testing results and other cumulative data can be efficiently stored and retrieved with the microcomputer. Further, an individual student's grades could be tallied and graphed for parent conferences. Another school-level administrative application is desk top publishing. One can make newsletters, memos, and letters to parents easily. Awards to reinforce student achievement or teacher performance could also be produced easily. Other uses include:

1. tracking equipment repair;
2. inventorying materials, equipment, and furniture;
3. word processing;
4. planning;
5. forecasting the impact on budget cuts on school; and
6. class scheduling.

DISTRICT-WIDE ADMINISTRATIVE APPLICATIONS.

To maintain the ongoing business operations of a school district, it is necessary to track accounting, payroll, employee, and student records. Computers can be used to handle the high volume of information for this type of work. For instance, on one program one can manage:

a. student data
b. personnel data
c. management programs
d. planning and special reports
e. state reports

Other programs can help a district:

a. keep track of allocations in grants; and
b. maintain a detailed financial accounting system to match invoices with accounts payable, search for appropriate suppliers, and maintain inventory records (e.g., programs used included First Choice or dBase).

When coupled with a mainframe, the potential is limitless. Our District uses an IBM 4361, a minimainframe, with an artificial intelligence system (Intellect Query Software System). We can find out:

-how many special education students are served district-wide by age, grade, or eligibility.
-how many students are in a program on a given day.

All by phrasing the query in "English."

TESTING

The diagnostic reporting system used in our District was developed to shorten the time span between the actual testing and completion of the written report. Previously, the diagnosticians would write the report by hand and submit it to a secretary for typing. Upon completion, the secretary would return it to the diagnostician for corrections. If corrections were necessary, the diagnostician would resubmit the report to the secretary, who corrected it and returned it to the diagnostician. In many cases this process covered several weeks, which ultimately prolonged the placement of the student in a special education program.

The diagnostic reporting system is a computer program which not only generates the report but also tracks all students tested. The input form is completed by the diagnostician, and the codes from the form are entered into the program. In most cases the report is completed and returned to the diagnostician within 30 minutes.

The report itself uses "canned" statements and recommendations developed by the diagnosticians. Comment sections of the system allow the diagnosticians the ability to write their own statements and recommendations if they do not feel the ones in the program are applicable, thus making each report more personal. The recommendations can be used by the teacher in writing and updating individualized education plans.

The tracking system allows for collection of data concerning the numbers and types of students tested, and identification of students by school, grade levels, ages, etc. This has proved to be invaluable to the District for state reporting purposes.

A similar program is being developed for use by Speech and Language pathologists. This particular program can be used in conjunction with the diagnostic reporting system for students who are tested by both the diagnostician and the speech pathologist, thus eliminating double entry of information. It can be used as a stand-alone program for those performing testing or re-evaluations at the school sites.

Ultimately, the complete reporting system will be tied to the mainframe computer, so that all information will be recorded in a central location, allowing non-confidential information to be sent directly to schools in the event of a student transfer. This will also aid in meeting the timelines established for state and federal reporting.

REPORTING REQUIREMENTS

There are sets of reports that each state must provide to the federal government. There are reports that each district must provide to its state department which are specific to each state. The computer allows for generation of these reports in the format requested. The speed and accuracy of the computer saves an inordinate amount of time. Information required for the December 1 Child Count, the End of the Year Report, and other required reports can be generated in the exact format requested.

For these purposes, as well as many others our Special Education Department has purchased an IBM 4361 minimainframe computer. It currently operates using the Intellect Query Software System. Levels of access by users has been built into the system. This allows the user to ask (in English) about child counts, total numbers of students, class lists, etc. from any location in the District. This operation is performed using a microcomputer with a modem. It allows novice computer users access to information with a limited amount of frustration. Information can be transferred from the screen to the printer when necessary.

PROFESSIONAL COMMUNICATION AND EDUCATION

The use of word processing and information processing systems has increased and improved communication throughout the district. The time required for preparing documents, newsletters, and memos has been greatly reduced with the advent of the computer. The use of filing systems that work with word processors allows for more personalized memos in less time. Telecommunications has decreased the time involved in dissemination of information and has reduced paper and mailing costs.

Our District offers credit and non-credit courses to all employees in the use of computers and technology. These are generally developed and taught by the Computer Education Resource Team, a group of 14 regular and special education teachers. This team is responsible for integrating the use of technology in the classroom and for teaching administrators how to use computers. Classes and workshops are offered throughout the school year and during the summer in everything from an introduction to microcomputer utilization to specific software applications.

ASSIST ADMINISTRATORS WITH COMPLYING TO STATE AND FEDERAL REGULATIONS

One can use the computer to keep current with litigation, legal decisions, decisions by the office of civil rights, and interpretations of State or Federal requirements by accessing electronic bulletin boards at the national or state levels. For instance, Special Lav and Special Net an two national bulletin boards which makes compliance information readily available to administrators.

STAFF DEVELOPMENT APPLICATIONS

Courseware and training programs can be developed or purchased especially for educators so that they may learn or increase computer skills. Courses can be taken by people in groups. Or, they can work at their own rate. Courses are particularly effective with periodic seminars or technical assistance.

One can use data bases to generate lists of articles and abstracts for trainers/interested teachers. One could also access EPIC or DIALOGUE to obtain abstracts of articles on specific topics.

Our District has developed a data base to track what employee took what staff development training. We produce an individualized program for educators and can compare what an individual has taken to identified competencies we want a person in that role to have. Through the software program, we can obtain the information for individuals or obtain:

a. a list of people at a school;
b. a list of elementary, middle, high school people; and
c. district data.

We have also developed a Computerized Workshop Evaluation Question Bank. We utilize the data base to evaluate workshops and give feedback to trainers and staff development planners. With the program, we can:

a. produce an evaluation sheet;
b. scan the data sheets;
c. analyze the data; and
d. print a statistical summary sheet for trainers specific to that workshop.

CURRICULUM PLANNING APPLICATION

Our District keeps inventories of texts and materials by grade or subject area to get maximum use of materials (e.g., tapes, videos, kits).

One can produce instructional materials via computer. For example, based on class testing results, one can print out different assignments for each student or group in a class. One can also tailor an instructional program to the specific needs of each student within a curricular area.

or

One can produce MAZES, word searches, etc. appropriate for classes.

By using dBase or spreadsheets, computers can be used to simulate impact of change in curriculum on facilities and staff. For instance, if we add a course requirement at 7th grade, we can predict the number of additional teachers needed, the number of classrooms needed, and the materials needed (e.g., based on the number of students and/or handicapping conditions).

INSTRUCTIONAL MANAGEMENT APPLICATIONS

There is currently at least one IBM XT or PC in each of our 125 schools. The computers were purchased with EHA-B monies for the primary purpose of generating IEP's (individual educational plans or total service plans). Two computer programs are available for teachers to use to select goals and objectives for students. The most popular program is the one which allows the teacher to actually write his/her own objectives and assign them to particular students, rather than choosing from a bank of provided objectives.

The system allows for recording objectives accomplished and adding new objectives. A program now in development will allow the teacher to directly input this information to the mainframe for tracking purposes. This will be tied into the student's permanent record.

The system now in development would also allow the teacher to select materials from the materials bank to work on specific objectives. Since the materials are available through a checkout system in a District media center, a request to the media center would automatically be generated. Materials would then by gathered by media center personnel. Then a message would be sent over electronic mail to inform the teacher that the materials were available for pickup.

Many teachers are independently using spreadsheet programs to record grades and print them out in graph form for teacher conferences. Graphs seem to work well with many parents. They provide parents with a visual clue as to where their child is in relation to other students or the whole class.

NETWORKING

Stand-alone network systems are currently being used in the area offices and central office settings. The network allows information to be aggregated in one central location, even though it may be inputted from several different work stations.

There are several advantages to this type of network system. It makes use of one large machine with a hard-drive rather than providing a hard-drive at each workstation. It allows administrators to get data at one location rather than from several locations around the building. Currently the data processing department is considering the feasibility of networking the host machines in each location to the mainframe, again to avoid double entry and to provide almost instantaneous access to the most current information concerning testing, placement, etc.

EVALUATION AND RESEARCH APPLICATIONS

There are three major levels for evaluation and research applications. The levels include:

1. Classroom level action research. Teachers can analyze data that they collect which could provide relevant information for instructional decisions.

2. School level evaluation and research. For example, pre and posttesting, tracking achievement test data, etc. can be used to determine if a particular instructional program is effective.

3. District-wide evaluation and research. For example, survey all those who work with handicapped students in a district to find out their training needs or if particular instructional programs are effective District-wide.

Regardless of the level of study, educators have several software statistical packages available. Some programs are home grown and some are on the market. These programs can be used by education personnel in action research or evaluation projects across the school system.

In summary, one can use computers to store information, manipulate information, and as a tool for doing basic statistical analysis. You can even utilize computers to write the evaluation reports.

TELECOMMUNICATIONS

Telecommunications is having a huge impact on our school District. Currently, in Special Education, each of the four area office has at least one dedicated line and modem setup dedicated for telecommunications. These are used for local access to our mainframes, and also for access to national bulletin boards and information sharing systems.

Our District carries five accounts on SpecialNet, so that each area has access to its ovn account and mail system. Using SpecialNet, the CASE division of CEC, has set up a NEW MEXICO bulletin board for access by all users in the state. The board is operated through the State Division of Technology and Media. This allovs users throughout the state to be in touch with each other to share information. The State Department of Education uses it to post messages, thus cutting mail and paper costs tremendously.

Other subscriptions to major on-line search vendors include everything from major database searches (such as ERIC) to nation-vide electronic mail systems.

At the local level, an electronic mail system is available on a District mainframe. Any administrator, teacher, university professor or student in the system is alloved access at certain levels to the E-MAIL system. Thus, administrators and teachers can keep in contact vith each other vithout "playing telephone tag."

AT the school level, students can use the system to send messages to each other in the same school or at other locations. Many teachers have setup a pen pal system vith other schools. Our District is currently vorking on a pen pal project vith hearing impaired classrooms. Students in these classes are pen pals vith other students. Preliminary data gathered on those hearing impaired students' improvement in writing skills has been significant.

SpecialNet also has a board dedicated to students. The KIDS.TALK board allovs students from different cities to communicate with each other. These can be viewed on the KIDS.TALK board.

Another local level service provided for teachers is the PC-SIG library (Personal Computer-Special Interest Group). The entire library of IBM and compatible public domain programs (currently over 800) vas purchased by the District on CD-ROM disk, and is being uploaded to the VAX. It is being placed on a board available to teachers. The teacher can actually previev the program on their ovn computer before downloading it to disk. Previeving the software allovs teachers to determine if the software will be useful in their classroom. Because these programs are in the public domain, they may be copied and distributed, providing a useful and inexpensive software supply for the classroom.

SUMMARY

Our presentation has demonstrated that a standard computer system can be used to serve a variety of purposes just by changing the software or using a modem. All of these uses described are currently in use in our District.

Further, the presentation demonstrated that the application of computer technology to specific organizational and technical requirements of a special education department in a district can:

1. Meet reporting requirements more efficiently and cost-effectively.
2. Assist administrators in complying with state and federal laws and regulations.
3. Identify problem areas such as IEP generation where technical assistance may be needed.
4. Assist administrators in getting information quickly and accurately.

The presentation demonstrated hov one large-city school district has used computer technology. Twelve fundamental applications of the microcomputer for special education administrators were discussed. More specifically, the presentation focused on the application of computer technology to organizational and technical requirements of a special education department in a local school district.